

AD_____

Award Number: DAMD17-00-1-0016

TITLE: Changing the Attitudes and Behaviors of Black Men to
Screening for Prostate Cancer

PRINCIPAL INVESTIGATOR: Maxwell Twum, M.D., Ph.D.

CONTRACTING ORGANIZATION: Fayetteville State University
Fayetteville, North Carolina 28301-4298

REPORT DATE: March 2005

TYPE OF REPORT: Final

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release;
Distribution Unlimited

The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

20050603 122

REPORT DOCUMENTATION PAGEForm Approved
OMB No. 074-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE March 2005	3. REPORT TYPE AND DATES COVERED Final (1 Mar 2000 - 28 Feb 2005)	
4. TITLE AND SUBTITLE Changing the Attitudes and Behaviors of Black Men to Screening for Prostate Cancer			5. FUNDING NUMBERS DAMD17-00-1-0016	
6. AUTHOR(S) Maxwell Twum, M.D., Ph.D.				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Fayetteville State University Fayetteville, North Carolina 28301-4298 <i>E-Mail:</i> mtwum@uncfsu.edu			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution Unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 Words) <p>The objectives of the project were a) to explore the prevailing attitudes toward screening for prostate cancer among Black men in the Cape Fear region of North Carolina b) to determine the comparative effectiveness of a one-time presentation of information advocating prostate cancer screening to that of repeated presentation of the message, and c) to determine the characteristics and impact of the agent of information delivery on the attitudes and behaviors of Black men toward screening for prostate cancer. The study involved the presentation of uniform messages advocating the benefits of prostate cancer screening to a group of 120 Black men 40 years and older who had never screened for prostate cancer, nor participated in a prostate cancer screening education program. Researchers, health professionals, and peer facilitators delivered educational messages once to one group, and three times to a second group. The comparison of attitudes before exposure to the messages to those after exposure was to help determine the impact of the program on attitudes in the groups. The number of men screened following exposure to the messages was to determine the impact of the program on behavior change. Data continue to be collected to help address the stated objectives of the study.</p>				
14. SUBJECT TERMS Prostate cancer, screening, black men, attitudes, behaviors			15. NUMBER OF PAGES 12	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18
298-102

Table of Contents

Cover.....	
SF 298.....	
Table of Contents.....	
Introduction.....	1
Body.....	3
Key Research Accomplishments.....	6
Reportable Outcomes.....	7
Conclusions.....	8
References.....	9

Introduction

Although research suggests that one out of every 6 African American men will develop prostate cancer in his lifetime (Wingo et al., 1996), many investigators have reported that African American men are the least likely to participate in prostate cancer screening and regular check ups (see for example, Catalona et al., 1994). This low rate of participation in prostate cancer screening suggests that African American men present their diseases at more advanced stages, and thereby also increase their mortality rate from the disease.

There is some evidence that early detection through screening and treatment of prostate cancer significantly reduces mortality from the disease (Gefland, Parzuchowski, Cort, & Powell, 1995). Men whose cancer is diagnosed at a localized stage have a 5 year survival rate compared to those whose diagnosis occurs at an advanced stage (Mettlin, Jones, Averette, Gusberg, & Murphy, 1993). Screening for prostate cancer is perhaps the only avenue for the early detection of the disease among Black men. There is, nevertheless, a high refusal rate by Blacks to participate in screening. A number of previous studies have identified and examined the factors underlying this high rate of nonparticipation in prostate cancer screening among Blacks. These factors include fatalism, fear, helplessness, and the sheer dislike of digital rectal examination (DRE) (Weinrich, Greiner, Reis-Starr, Yoon, & Weinrich, 1998).

Many researchers have emphasized the need to educate Black men about the benefits of prostate cancer screening. It has also been suggested that educational messages must clarify to this population the personal risks for prostate cancer, and emphasize the importance and ease of screening (Myers, Wolf, Balshem, Ross, Chodak, 1994). Researchers have further suggested that to maximize the impact of this message, messengers from the community should be actively engaged in the education process. The need for education is also underscored by the fact that a substantial number of African American men do not have adequate knowledge about prostate cancer. Although it appears that education about prostate cancer and the screening process can be helpful, the specific cues that facilitate participation by African American men in screening for prostate cancer have not yet been identified.

Health professionals recognize that behavior change is a complex process that cannot depend on a one-shot presentation of educational information to the target (see for example, Runyan & Runyan, 1991). Repetition of the message has been found to provide more opportunities for the recipient to elaborate cognitively upon the message and realize its cogency and favorable implications (Cacioppo & Petty, 1979). The literature suggests that moderate repetition of messages advocating prostate cancer screening may have a larger impact on attitudes toward screening for prostate cancer among Black men.

In addition to the message and the frequency of delivery to the target, the communicator also plays an important role in determining the persuasive impact of the message. Factors that influence the effectiveness of the message include the perceived expertise of the communicator and the degree of trustworthiness of the communicator. Some studies have shown that testimony by peers is effective in encouraging participation in screening for prostate cancer among African American men (Black, Schweitzer, & Dezelsky, 1993; Freeman, Muth, & Kerner, 1995; Powell, Gefland, Parzuchowski, Heilbrun, & Franklin, 1995; Weinrich, Weinrich, Frank-Stromborg, Boyd, & Weiss, 1993).

Although previous research has identified many variables related to screening for prostate cancer among Blacks men, it has not explained other important issues on this subject. For example a review of the literature suggests that:

1. Previous studies were based on one-time only presentation of information advocating prostate cancer screening to Black men without examining whether a one-time presentation has better effect compared to repeated presentations of messages to the same target audience.
2. The relative impact of the agent or agents of delivery has not been adequately investigated.
3. Previous studies have not specified whether there are significant changes in attitudes resulting from the educational programs, and whether these attitude changes correspond to the behavior changes observed.
4. The long-term impact after the first presentation of information about prostate cancer screening has not been adequately explored.

With the foregoing background, the project was designed to address the hypotheses that:

1. Repetition of educational information on the need for yearly prostate cancer screening to Black men would lead to significantly positive attitude change with corresponding significantly larger numbers of first-time participation in screening for prostate cancer compared to a one-shot presentation.
2. Peer facilitators and registered nurse or members in medical professions in congregations would significantly influence more positive attitude and behavior change toward prostate cancer screening compared to an outside researcher.
3. There would be significantly more positive attitudes toward screening for prostate cancer following participation in the prostate cancer education program compared to attitudes prior to the program.

Body

A quasi-experimental study was set up to examine the hypotheses listed above. The communicator of educational messages (Communicator) and the number of times messages advocating prostate cancer screening to groups of Black men (Frequency) were manipulated in this study. Specifically, a 2(Frequency) X 3(Communicator) quasi-experimental factorial design was used to test the hypotheses.

For the Researcher category of the Communicator factor, the principal investigator (PI) assisted by graduate students presented educational messages on prostate cancer screening. All communicators presented the same educational information for one-time only to one group of participants, and repeated the presentation for three occasions to a second group of participants. Three months elapsed between presentations for the groups exposed for multiple times to the information.

All participants in the program were screened for previous participation in prostate cancer screening programs or for previous experiences with prostate cancer screening. No participant in this study reported previous experiences with either DRE or prostate specific antigen (PSA) screening.

The participants responded to a questionnaire designed to measure their baseline attitudes to prostate cancer screening before they were exposed to material that advocated yearly screening for prostate cancer. Three months following the last presentation of educational material, participants in all groups were asked to complete a follow-up questionnaire on their attitudes to prostate cancer screening. The comparison of attitudes before exposure to the messages to those following exposure was to help determine the impact of the program on attitudes in the groups. An assessment of the number of men screened following exposure to the messages was to help determine the impact of the program on behavior change. Perhaps the most important feature of this study was that it was to help determine whether the Communicator and Frequency variables interacted, by how much, and how they did so, in determining changes in attitudes toward screening for prostate cancer, and prostate cancer screening behaviors of Black men.

Participants were recruited from Black churches, barbershops, and community centers throughout the Cape Fear region of North Carolina. The region includes Cumberland county in which Fayetteville, the main business and regional center is located, Sampson, Hoke and Harnett counties.

Radio, television, and newspaper advertisements, mass distribution of fliers at community centers and health fairs were used as recruitment tools for this study. We also used our extensive contacts with pastors, deacons, and other church leaders to enlist participants from all known predominantly Black churches in Cumberland County, and mailed solicitation letters to Black churches in the other counties. The most effective means through which participants were recruited was through mass mailing of letters to all Black men in Cumberland and adjoining counties.

To qualify for participation in the study one had to satisfy the following conditions:

- i) Be an African American man of at least forty years old.
- ii) Have no history of prostate cancer diagnosis and/or treatment.
- iii) Have no previous or current diagnostic testing for prostate cancer.

The above stated criteria were necessary for examining the effect of educational information on attitudes and behavior change in individuals who had never before screened for prostate cancer. It was necessary to exclude individuals with previous knowledge of prostate

cancer screening because they were likely to be well informed about the disease. Such previous knowledge was deemed likely to influence their attitudes and behavior regarding screening for the disease. The inclusion of such individuals would have introduced confounds that could have prevented a study of the effectiveness of educational message on the attitudes and behaviors of those with little prior knowledge of the risks posed by the disease.

As outlined in the 2003 yearly report, a number of practical problems with the recruitment of eligible participants made it necessary to drastically revise the timelines originally proposed for this study. An important reason for the delays in the fulfillment of the originally proposed timelines was the extreme difficulty with the recruitment of participants. It took several months to recruit and interview eligible participants, in addition to the setting up of educational sessions.

After identifying participants, research assistants directly interviewed them about their attitudes to prostate cancer screening. Following the interview, we conducted educational sessions on prostate cancer screening for groups of 20 men each. The sessions included information on the anatomy and functions of the prostate, symptoms of prostate infections and cancer, the nature of prostate cancer screening using DRE and PSA, and treatment options for prostate cancer.

The theme of the presentations was the need for yearly prostate cancer screening to facilitate early detection of the disease. Emphasis was given to the high survival rate following early detection of prostate cancer through DRE and PSA screening and treatment of the disease. The presenters used multimedia resources including slides, charts, and video segments on prostate cancer screening.

All Communicators conducted two educational sessions; one involving the one-time presentation of information, and three sessions involving the repetition of messages. At each of these sessions, vouchers to cover the screening cost were issued to each participant. A letter explaining the study and requesting DRE and PSA screening of the bearer was given to each participant. The participants were encouraged to obtain screening from their respective primary care doctors. Those without access to primary care doctors were directed to obtain screening from a group of medical doctors in Fayetteville who agreed to screen participants. Each participant was given a screening certification form that had to be completed by the examining physician and returned to the PI.

Some participants who completed the initial interviews did not attend the educational sessions. Many participants in the multiple session groups did not attend the follow-up sessions. The most noteworthy problem was that of the numbers that participated in the educational sessions, only a handful has so far been screened for prostate cancer. The table below summarizes the numbers of participants interviewed and screened for the one-time and repeated exposure groups respectively.

One-Time Exposure

Group Educator	Number Interviewed (Initial)	¹ Number Interviewed (Follow-up)	¹ Number Attendance at Educational Session	¹ Number Screened
Researcher	20	11	14	4
Survivor	20	5	10	6
Medical Personnel	20	8	17	1

¹The numbers in these columns have been revised for additions and corrections from the 2004 report.

Repeated Exposures

	Interviews		Attendance at Educational Sessions			Number Screened
Group Educator	Initial	Follow-up	Session 1	Session 2	Session 3	
Researcher	20	8	14	3	4	6
Survivor	20	2	16	1	2	4
Medical Personnel	20	7	16	4	2	2

Although data from the initial interviews have been entered into the database, only preliminary analysis of the initial attitudes to prostate cancer screening can be performed at this moment. Meaningful analysis of the data to address the hypotheses of this investigation requires more information from the participants. As the tables above indicate, very few participants have provided the necessary follow-up data that will facilitate a comparative analysis of attitudes to prostate cancer screening before and after exposure to information advocating yearly screening to the participants. Similar points apply to the prostate screening behavior of the participants. The collection of these data requires further no-cost extensions to the project.

Key Research Accomplishments

1. One hundred and twenty Black males have been interviewed for their initial attitudes on screening for prostate cancer.
2. Educational sessions advocating prostate cancer screening have been conducted for 87 participants who had not previously been screened for prostate cancer.

Reportable Outcomes

More data from participants must be collected before reportable outcomes can be presented.

Conclusions

Significant progress has been made towards fulfilling the goals and objectives of this project, albeit, at a much slower pace than originally anticipated. A major problem has been the large amount of time and resources required to enlist participants. The follow-up data on attitudes toward screening obtained so far represent a mere 34% of the original. A meaningful comparative analysis of attitude change can be done with a minimum of 80% of the original interview data. The cessation of the project at this point will make it impossible to get those data. Similar analyses to determine the effect of Communicator on attitudes toward prostate cancer screening, and screening behavior following exposure to the information can hardly be performed on the data obtained so far.

References

- Black, B., Schweitzer, R., & Dezelsky, T. (1993). Report on the American Cancer Society workshop on community cancer detection, education, and prevention demonstration project for underserved populations. *CA-A Cancer Journal for Clinicians*, 43, 226-233.
- Cacioppo, J. T., & Petty, R. E. (1979). Effects of message repetition and position on cognitive response, recall, and persuasion. *Journal of Personality and Social Psychology*, 37, 97-109.
- Catalona, W., Richie, J., Ahmann, F., Hudson, M., Scardino, P., Flannigan, R., DeKernion, J., Ratliff, T., Kavoussi, L., Dalkin, B., Waters, W., MacFarlane, M., & Southwick, P. (1994). Comparison of digital rectal examination and serum prostate specific antigen in the early detection of prostate cancer: Results of a multicenter clinical trial of 6,630 men. *Journal of Urology*, 151, 1283-1290.
- Freeman, H. P., Muth, B. J., & Kerner, J. P. (1995). Expanding access to cancer screening and clinical follow-up among the clinically underserved. *Cancer Practice*, 3, 19-30.
- Gefland, D., Parzuchowski, J., Cort., M., & Powell, I. (1995). Digital rectal examinations and prostate cancer screening: Attitudes of African American men. *Oncology Nursing Forum*, 22, 1253-1255.
- Mettlin, C., Jones, G., Averette, H., Gusberg, S. B., & Murphy, G. P. (1993). Defining and updating the American Cancer Society guidelines for the cancer-related checkup: Prostate and endometrial cancers. *CA-A Cancer Journal for Clinicians*, 43, 42-46.
- Myers, R. E., Wolf, T. A., Balshem, A. M., Ross, E. A., & Chodak, G. W. (1994). Receptivity of African-American men to prostate cancer screening. *Urology*, 43, 480-487.
- Powell, I., Gefland, D., Parzuchowski, J., Heilbrun, L., & Franklin, A. (1995) A successful recruitment process of African American men for early detection of prostate cancer. *Cancer*, 75, 1880-1884.
- Runyan, C. W., & Runyan, D. K. (1991). How can physicians get kids to wear bicycle helmets? A prototypic challenge in injury prevention. *American Journal of Public Health*, 81, 972-973.
- Weinrich, S. P., Greiner, E., Reis-Starr, C., Yoon, S., & Weinrich, M. (1998). Predictors of participation in prostate cancer screening at work sites. *Journal of Community Health Nursing*, 15, 113-129.
- Weinrich, S., Holdford, D., Boyd, M., Creanga, D., Carver, K., Johnson, A., Frank-Stromborg, M., & Weinrich, M. (1998b). Prostate cancer education in African American churches. *Public Health Nursing*, 15, 188-195.
- Weinrich, S. P., Weinrich, M. C., Frank-Stromborg, M., Boyd, M. D., & Weiss, H. (1993). Using elderly educators to increase colorectal cancer screening. *Gerontologist*, 33, 401-406.
- Wingo, P., Bolden, S., Tong, T., Parker, S., Martin, L., & Heath, C. (1996). Cancer statistics for African Americans. *CA-A Cancer Journal for Clinicians*, 46, 113-125.